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Transmission Cost Allocation Methodologies for Regional Transmission Organizations

July 2010

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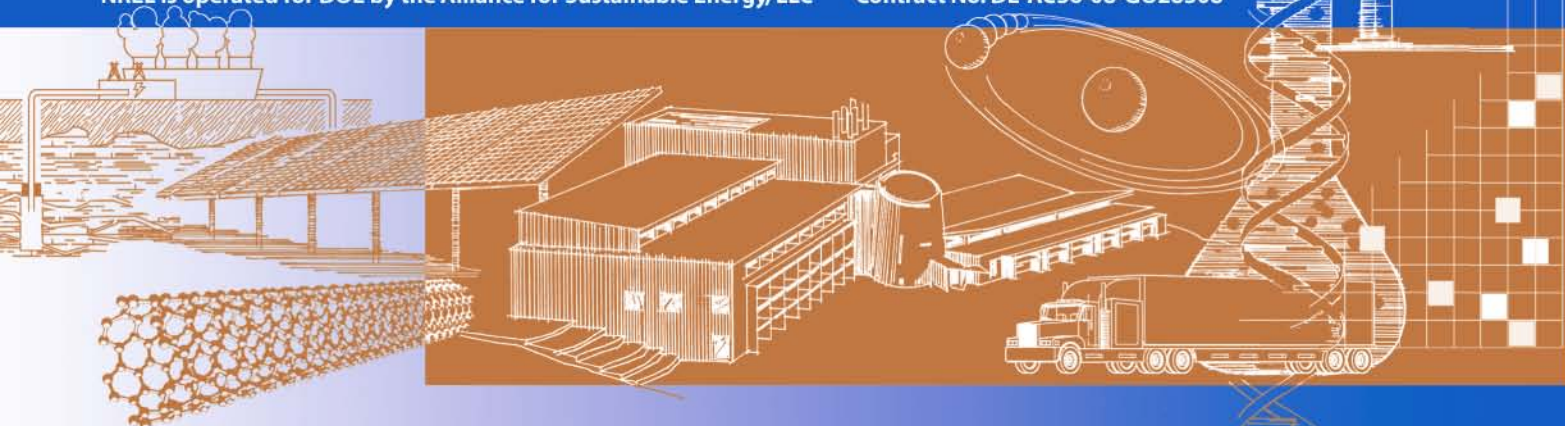
Subcontract Report

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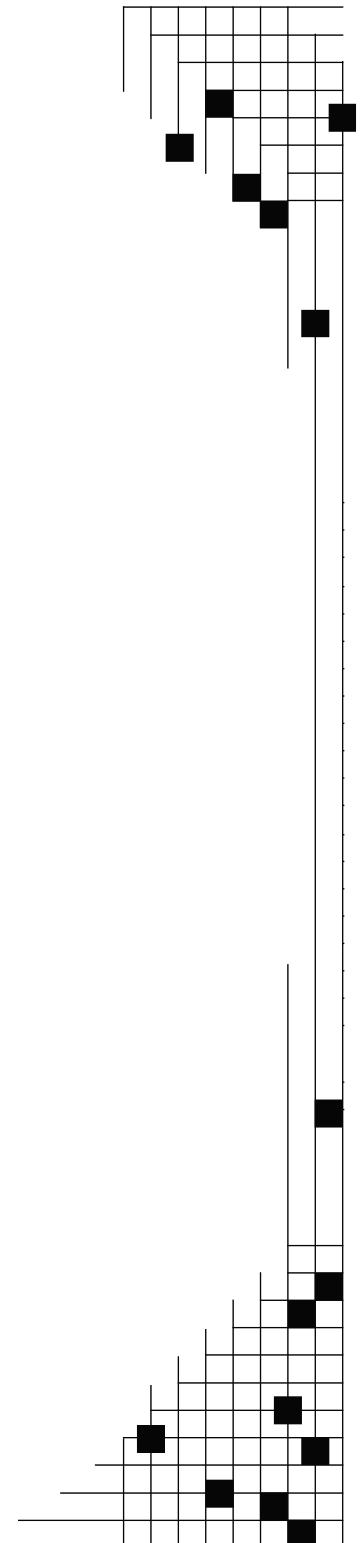
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Transmission Cost Allocation Methodologies for Regional Transmission Organizations

A summary of RTO transmission cost allocation methodologies.
Information compiled through June 2010

This table describes transmission cost allocation methodologies for transmission projects developed to maintain or enhance reliability, to interconnect new generators, or to access new resources and enhance competitive bulk power markets, otherwise known as economic transmission projects.

In general, but not always, the costs of new or updated transmission needed to maintain reliability are assigned to load. Cost allocation for new or upgraded transmission for economic purposes may have to meet an economic test, such as lower projected production costs, although this varies by independent system operator (ISO) or regional transmission organization (RTO).

Cost allocation of new or upgraded transmission to interconnect new generators in the United States is largely dictated by FERC Order No. 2003.¹ Order 2003 identifies two types of construction costs that are associated with generation interconnection: direct connection facilities and network transmission upgrades. Direct connection facilities include all equipment and construction required to connect the new generating facility to the first point of interconnection with the transmission grid, while network transmission upgrades include the equipment and construction required to reinforce or upgrade the existing transmission system in order to accommodate the new generation project.

Under Order 2003, generators are responsible for the cost of all direct connection facilities between the generator and the transmission grid, and must provide the funding for the cost of any network upgrades and new additions to the transmission network that are required as a result of the interconnection. Order 2003 states, however, that generators are to be fully reimbursed for the network upgrade costs by transmission providers within five years, with interest, in the form of either credits against the costs of transmission service or financial transmission rights if they are available.

By virtue of being considered independent entities by FERC in Order 2003, RTOs and ISOs are permitted to propose variations to the generator interconnection procedures contained within Order 2003, provided the proposals are “just and reasonable and not unduly discriminatory and would accomplish the purposes of Order 2003.”² Some RTOs and ISOs have used the

¹ Federal Energy Regulatory Commission, Order No. 2003, *Standardization of Generator Interconnection Agreements and Procedures*, Aug. 19, 2003, Order No. 2003-A, Mar. 26, 2004, Order No. 2003-B, Jan. 4, 2005.

² Federal Energy Regulatory Commission, *Interconnection Queuing Practices, Order on Technical Conference*, 122 FERC ¶ 61,252 (2008), p. 13, note 10.

independent entity variation to propose alternative cost allocation methodologies for transmission upgrades and for interconnecting new generators, and it is these individual methodologies that are explored in this table.

FERC recently approved anchor/tenant-type cost allocation methodologies for two merchant transmission lines. TransCanada's Zephyr and Chinook projects are two 500-kV high-voltage direct-current transmission lines each with a capacity of 3,000 MW. The Zephyr project would originate in Wyoming while the Chinook project would originate in Montana, with both terminating in the Eldorado Valley south of Las Vegas. In February 2009, FERC granted both projects negotiated rate authority. TransCanada developed a precedent agreement for open seasons that were launched on October 13, 2009. The open seasons resulted in signed precedent agreements for the full 3,000 MW of available capacity on the Zephyr power transmission line with three renewable energy developers in Wyoming.

As this table was being finalized, FERC issued a proposed rule in June 2010 that would require each transmission provider to participate in a regional grid planning process and to study transmission that may be required to meet state or federal policy requirements such as renewable energy standards. The proposed rule would also require the transmission provider to create a grid planning agreement with each neighboring region.

Table: RTO Transmission Cost Allocation for Reliability and Economic Transmission Projects

	CAISO	ERCOT	ISO-NE	MISO	NYISO	PJM	SPP
Reliability Upgrades	<p>Participating transmission owners finance reliability upgrades and are repaid through Transmission Access Charges (TAC) assessed to CAISO grid users. Costs of upgrades ≥ 200 kV allocated to load on a MWh basis. Costs of merchant transmission facilities are allocated to the project sponsor, which may receive repayment through the TAC or congestion revenue rights.</p>	<p>ERCOT conducts a system-wide assessment and the cost allocation is the same for both reliability and economic projects. Costs allocated across all loads based on share of summer peak demand.</p>	<p>Reliability Upgrades included in ISO-NE Regional System Plan as needed to ensure reliability. Regional Benefit Upgrades are 115 kV and above; costs allocated to load based on zonal monthly coincident peak loads. Localized costs excluded from the regional allocation—those costs allocated only to the zone in which the localized costs were incurred.</p> <p>Local Benefit Upgrades are 115 kV and below; costs allocated locally to the zone.</p>	<p>Baseline Reliability Projects include upgrades where costs $> \\$5$ million or are 5% or more of the Transmission Owner's net plant. 345 kV or above - costs allocated 20% regionally on a postage stamp basis, 80% sub-regionally based on electrical proximity using Line Outage Distribution Factor (LODF) analysis. 100 kV to 344 kV – costs allocated 100% sub-regionally to pricing zones based on LODF analysis. PJM/ Midwest ISO cross-border allocation based on each RTO's contribution to the constraint that required the need for the upgrade; then within each RTO, done as per the RTO's respective methods.</p>	<p>Reliability planning identified by the NYISO Comprehensive Reliability Planning Process. While market-based solutions are preferred, if a regulated backstop solution is needed it is paid for on a beneficiary-pays basis. Primary beneficiaries – zones identified as those contributing to the reliability violation that the project will alleviate. Costs allocated to zones based on contribution to violation and to load serving entities (LSEs) within each zone on a load ratio share (MWh) basis.</p>	<p>Reliability Upgrades included in the Regional Transmission Expansion Plan (RTEP): Backbone Facilities: ≥ 500 kV, costs allocated 100% to load based on each zone's share of zonal non-coincident peak load; < 500 kV and cost $< \\$5$ million – are allocated to zone; cost $\geq \\$5$ million – direct beneficiaries identified and allocated costs. The cost allocation method for facilities ≥ 500 kV is currently under court-ordered review in FERC Docket No. EL05-121-006. PJM/ Midwest ISO cross-border allocation based on each RTO's contribution to the constraint that required the need for the upgrade; then within each RTO, done as per the RTO's respective methods.</p>	<p>Effective June 19, 2010, the Highway/Byway cost allocation system will apply to new transmission facilities identified as Base Plan Upgrades (BPU). BPU's include both reliability and economic projects approved by the SPP Board of Directors, including priority EHV projects and projects arising from SPP's proposed Integrated Transmission Planning (ITP) process. Highway: ≥ 300 kV. All costs allocated regionally. Byway: < 300 kV. All costs zonal for projects < 100 kV; for projects above 100 kV and below 300 kV, 1/3 allocated regionally and 2/3 zonal.</p> <p>Zonal allocations determined according to the SPP pricing zones.</p>

	CAISO	ERCOT	ISO-NE	MISO	NYISO	PJM	SPP
Generator Interconnection Upgrades	<p>Studies and direct interconnection costs are funded by the interconnection customer. Upgrade costs are funded by the interconnection customer subject to reimbursement by the participating transmission owner within 5 years. The participating transmission owner is repaid through the TAC, which is allocated to load on a MWh basis.</p> <p>Separate category for Location Constrained Resource Interconnection Facilities (LCRI) in designated areas. Costs are recovered through the TAC until generators come on-line, after which generators pay a pro rata share.</p>	Costs allocated to the transmission service provider.	Costs of network upgrades are allocated to the generator. If ISO-NE determines the upgrade provides system-wide benefits, then costs are allocated in the same manner as ISO-NE's Reliability Upgrades.	<p>Generators required to pay 100% of interconnection costs to lines smaller than 345 kV, and 90% of network upgrades for lines 345 kV or greater. The remaining 10% will be recovered system-wide.</p> <p>Separate category for projects interconnecting to American Transmission Company LLC, International Transmission Company, Michigan Electric Transmission Company, LLC, or ITC Midwest LLC: interconnection customer is fully refunded for their upgrade costs from the host transmission owner.</p>	<p>For Energy Resource Interconnection Service, developer is responsible for the cost of the new interconnection facilities not identified in the NYISO's Annual Transmission Reliability Assessment. For Capacity Resource Interconnection Service, the total cost of the upgrades for all the projects in a Class Year will be allocated among the projects based on the pro rata of each Class Year project on the required transmission system upgrades. In both cases, the developer is fully responsible for all attachment facilities.</p>	The costs of interconnection in PJM are allocated in full to generators according to their projected system impact as determined through a study process.	Generator Interconnection Network Upgrades are direct assigned to Interconnection Customer at 100% of cost. Interconnection customer's contribution towards Network Upgrades are eligible for revenue credits.

	CAISO	ERCOT	ISO-NE	MISO	NYISO	PJM	SPP
Economic Upgrades	Economic Upgrades identified through the planning process are financed in the same manner as Reliability Upgrades.	ERCOT conducts a system-wide assessment and the cost allocation is the same for both reliability and economic projects. Costs allocated across all loads based on share of summer peak demand.	Market Efficiency Transmission Upgrades can be included in the ISO-NE Regional System Plan (RSP) if evaluated as beneficial to reducing bulk power system costs – if included in the RSP as a planned project, costs allocated same as for reliability upgrades. If not, costs allocated to project sponsors.	Regionally Beneficial Projects 345 kV or higher and costing over \$5 million can qualify as an economic upgrade if it meets or exceeds cost/benefit test that increases linearly over the transmission planning period. Costs allocated 20% regionally on a postage-stamp basis, 80% to the three Transmission Provider Planning sub-regions (West, Central, East) as determined by congestion-based metrics (beneficiary analysis, 70% based on production cost benefits, 30% based on expected LMP-based load benefits. Analysis determines each sub-region's benefit from the upgrade, and costs recovered on a postage stamp basis within each). If a project can be designated as both a Regionally Beneficial Project and a Baseline Reliability Project, costs are allocated as a Regionally Beneficial Project.	To be eligible for this allocation, the projected benefit of the project (measured as the savings in statewide production cost with and without the proposed project) must exceed the estimated cost, as measured over the first ten years from the proposed commercial operation date. Total capital cost must exceed \$25 million, and a super-majority of 80% or greater of the identified beneficiaries are required to approve the project. For each load zone that would benefit from a proposed project, costs are allocated based on the zonal share of total LMP energy savings. Within zones, costs allocated by each LSE's MWh share of total energy.	Costs of Economic Upgrade enhancements to reliability-based projects included in RTEP that reduce cost of meeting load are allocated the same way as reliability upgrades. For projects that are <500 KV and accelerate completion of an approved reliability project, cost allocation assigned to zones based on the reduction in LMP payments if there is at least 10% difference between this method and the method for reliability projects. For new economic transmission that is <500 KV, costs allocated to zones which have a projected decrease in load energy payments and is based on each zone's pro rata share of the change in load energy payment.	Priority EHV projects have been designated BPU and will be paid regionally through the Highway/Byway methodology. Projects arising through the ITP will be allocated according to Highway/Byway. ITP will integrate both reliability and economic study systems and will include an annual reliability assessment, a triennial 10-year midterm assessment, and a triennial 20-year long-term assessment. (Note: as of June 2010, SPP's ITP FERC filing was still pending.)

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